This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

818
.B17

170 B16

Bailey, Thomas P.

A 816,068

gy: standpoint,

ative results.

1899

niversity of Michigan

GENERAL LIBRARY
OF
University of Michigan

Presented by

Univ. of California

Mar 20 1899 ~~1900~~

398 Mun

From Library of Univ. of Cal

UNIVERSITY OF CALIFORNIA

1C61

ETHOLOGY: STANDPOINT, METHOD, TENTATIVE RESULTS

By Thomas P. Bailey, Jr.

[Reprinted from the University Chronicle, I:6: II:1]

BERKELEY
The University Press
1899

ETHOLOGY: STANDPOINT, METHOD, TENTATIVE RESULTS.*

By THOMAS P. BAILEY, Jr.

PART I.

A science whose claim to exist is disputed cannot readily be defined. John Stuart Mill predicted ethology some fifty years ago. To him it was to be the "science of the formation of character," or, more shortly, the "science of character." As some thinkers decline to restrict the term "science" to the natural sciences, so called, and as character is developed as well as "formed," we may roughly define ethology as the empirical science of the development and formation of character. However, no science of character worthy of the name can dispense with the insights and criticism of the philosophical disciplines. If Mill and Bain were right in thinking that ethology must underly the scientific study of education, the highest and most rational ideals of the whence and whither of man and the universe must spiritualise the standpoint, method, and conclusions of the science of character. My first duty must, therefore, be to indicate the relation of philosophy to ethology.

If we provisionally characterize education as (1) training for habit, or faculty, (2) nurture for instinct (character-tendency, many-sided interest), and (3) development for aptitude (talent, special powers), we may

---

***Those interested in the literature of ethology (as I conceive it) will find a partial bibliography and some typical references in a Library bulletin about to be published by the University.**

say that "training" is more specially concerned with the psychological side of ethology; "nurture," with its social side; development, with its biological side, using the word biological in the widest possible sense. For the purpose of these articles, it will be sufficient to discuss the relation of ethology to "sociology" and psychology. One must remember, however, in this discussion of standpoint, that this attempt to critically stand outside of one's work is perforce doomed to failure unless one has readers that are sympathetic on account of having themselves felt the need of an ethology. The same general remark applies to the section on method. One often has to do a thing first, and then find out afterward how he has done it. In the second article on "Hypothesis and Tentative Results" will be found a venturesome attempt to compress much thought into little space. I trust that the apparent abstractness and technicality of the treatment will not frighten those who have read the first article. An influential man said the other day: "Every teacher at the University teaches about character." Even so; hence the necessity of following with sympathetic, but critical, eyes any comprehensive attempt to work out an ethology.

I. STANDPOINT. 1. When Socrates began to interest men in the study of human nature, the first ethological note of philosophy was sounded. The theoretical and the practical, the ideal and the real, the concrete and the abstract, came by turns under investigation; but under them all, and giving them valid significance, was the idea of the human spiritual character, at once universal and particular. In the half-poetical philosophy of Plato, the lines of the leading philosophical disciplines appear; in Aristotle, philosophy begins to be self-critical and to separate its method from that of science. The naively ethological view of Socrates is lost; but Plato's Justice and Aristotle's Golden Mean become the corner-stone of a philosophy of character that is at once concrete and generic. When Bacon revived and transformed the *scientific* Aristotle, when Descartes' "method" gave a modern form and spirit to the *metaphysical* Aristotle, two of the aspects of the study of character began to be clearly defined. Locke and Leibnitz differentiate the philosophical study of character, the one emphasizing the psychological side, the other the metaphysical view. Descartes and Spinoza had felt the ethological importance of the emotional life, but were unable to bring it into effective connection with psychological mechanics on the one hand, and metaphysical universality on the other. Locke's Sensation and Reflection (with the stress on the sensation) critically clarified by Hume, Leibnitz' Monodology as a rational basis for individualism —these give us typical examples of the dependence of *any* science of character on the philosophical disciplines. Kant's criticism shows the limitations both of the natural science of character and of metaphysical philosophy of character. Moreover, he restored to psychology the *relational* element of thought that the school of Locke and Hume had obscured. Finally, he performed the function of a modern Socrates in that he made conscience a "Practical Reason," the Greek "Harmony" penetrated by the Christian "Duty." Herbart's realistic psychology, his educational doctrine of "many-sided interest," and his structural apperceptionism, combine some of the most valuable elements of Locke, Leibnitz, and Kant: while Hegel, with his idealistic developmentalism and his organic view of history, worthily corrects the Herbartian atomism and, by anticipation, the one-sided empirical evolutionism of our day. In Schopenhauer, the psychology of impulse and emotion enriches the English sensationalism and the German relationism. Finally, Lotze attempts—though, it seems, unfruitfully—to unite the conflicting elements in a concrete-generic "higher synthesis."

It would be manifestly absurd to pretend that the few lines above indicate satisfactorily the contributions of philosophy to ethology. What they are intended to do is to point out the fact that a merely naturalistic ethology is impossible, that other sciences can more or less afford to disregard the history of philosophy and the philosophical criticism of their notions and assumptions, but that ethology must accept certain conclusions of philosophy as postulates, and must not proceed on the purely naturalistic assumptions of some of the other sciences. Physics, Chemistry, Biology, care nothing for God, freedom, immortality; ethology must not only admit that these notions are part of the make-up of human nature, but must refuse to act as if they were not true. On the other hand, ethology is not called on to take sides in matters that do not evidently bear on its assumptions, methods, or results. Perhaps a short statement of the philosophical postulates of ethology as they appear to me may not be useless.

The only self-subsistent realities are characters. "Matter" is real only in so far as it is the product of the creative activity of characters; so far as it is a necessary factor in the self-realisation of characters forming an organic society, whose effective law is that of a Perfect Character. "Consciousness," too, is an abstraction when viewed by itself; it is the necessary presupposition of self-consciousness, which in turn is the necessary presupposition of autonomous conscience. Mechanical "matter," the product of a conscience organising a society of subordinate but free consciences, is the necessary antecedent of "vital matter," which in turn conditions "conscious matter." Men's characters are thus both products and creators. As creators they subject the produced part of themselves and "nature" to the creative part of themselves, in accordance with the supreme law of their nature (reflecting the nature of the Perfect Character) which law they choose to obey as cooperative members of the Society of Characters. Time and space and development are probationary conditions of *social* self-realisation. Whether they "exist" objectively or subjectively, or both, is of no moment provided they be not the *final* conditions of character, but register modes of character-activity to persons not perfect. The time-order is just the eternal order abstractly and imperfectly viewed. "Nature" and the "natural" part of us is inflexibly predetermined—the "end is in the beginning." The evolutionary order is arranged for—of ourselves we do nothing. Our empirical characters serve as the probationary occasions for self-determination. To determine ourselves wrongly is to forfeit the conditions of reality, is to necessitate the divine experiment to continue—through others perhaps—until the number of the autonomous elect fits the world prepared for it. God's knowing our failure is the same thing as His continuing to seek for a free person who wills to be His son. To be saved or damned in time and space by "heredity and environment," is not to be saved or damned at all. Our character-attitude, our conscience-action toward this salvation or damnation (as it happens) will determine whether we are sons of the Father and His Society or whether we "go to our own place," which cannot be anything significant and real apart from the Father and His sons.

Each one of us reflects the universe from his own peculiar standpoint. Each is himself and not another. Each character is unique; particular and universal; social, individualistic, and personal. The universe's interests are ours, and ours are the universe's. We seek to bring about the Society of which each one of us is a member. We seek not the Society apart from ourselves, or ourselves apart from the Society. So far as we interact with others we are simply natural agents, products and not creators; so far as we *really* co-operate with others, we are creators, and are members of the Kingdom of which God is the Integrator. The natural order seems to us progressive; stage by stage does the end that was in the beginning manifest itself as the end. Hence an empirical study of character, if its aim is sincere (ideal), and its method scientific, sympathetic, and critical, must itself become a factor in the evolution of knowledge and reality; although *as* ethology it must declare metaphysical problems beyond its ken.

Two objections to this view present themselves—first, it is "obscure metaphysical jargon;" second, it is theological. In answer, I would say: First, that the thought seems clear and helpful to me, while I am conscious that I am not able to state it as a professional philosopher would; second, that all philosophy is profoundly influenced by theology, just as all theology is the metaphysics of religion. The unanalysed religious conscience may tell the same story as philosophy, though in a social or collective way. If our view is not based on the religious as well as on the empirical experience of the race, it is not true.

This much may be allowed me—that ethology has a right to postulate unitary characters, germinal and developed, as its starting-point, as its unit, as its datum; instead of starting with matter, consciousness, or some other abstraction. Philosophy and religion give us the individual in his relations to other individuals. We must appeal to the historical and social sciences for the real content of our ideal of society. For the study of the mechanism of both individual and society, we must appeal to the psychological sciences.

2. Many people nowadays believe in the possibility of a "sociology," or the study of society as a whole. I cannot believe that even a successful beginning of such a science has been made. Not only is the "social organism" a metaphor and a fiction, but it tends to distract attention from the only social reality, the individual. While it may be true that philosophy and the old annalistic history have individualized character too much, history and social science of to-day socialize character unduly. The philosophical disciplines and the social sciences alike deal with abstractions. And well they may. For them it is the very condition of existence. But they ought always to *realize* what they are doing. You may *call* a thought-system, or a "social organism" *concrete*, if you choose; but such concreteness is logical only. The only possible synthesis of the individual thinker and the social member is the person,

the character. Perhaps we are to have a philosophy based upon this idea. Even so, we shall still need a *science* based upon it, and that science cannot be sociology. No doubt we shall have many more social sciences than at present, but it seems to me that *divide et impera* will be their rule. We have had poetico-historical philosophizing (Lessing, Herder, *et al*), the "physics of politics" (Montesquieu, Comte, Buckle, *et al*), social biology (Spencer, Schaeffle, *et al*), and numerous other attempts at sociology. At last we are beginning to see that the "sociologists" must follow the example of the economists, and carefully limit the field, while insisting with the "historical school" of economists that our abstractions do not represent the whole man. But I cannot see that anything is gained by calling the *socius* or his *societas* the "whole man." If there is a definite historical development and a coherent set of social "laws" or modes, we can obtain them only by abstraction from the social individuals or characters that make up society. We may estimate the character, effect of climate, soil, race, or we may show how the social aspects of man's nature dominate him at times; we may compare "ontogeny and phylogeny," we may understand individuals and peoples vastly better by studying the social results of common traits of character; but surely we must realize that the science of human nature is possible only on the supposition that characters have *substantially* the same tendencies and traits, that the macrocosm is a resultant of microcosmic forces. This is the standpoint of the atomic and organic sciences, even (as in physics and chemistry) when the scientific imagination is called on to construct the units the senses cannot lay hold of. The sociologists are telling us that their science is becoming psychological. Let us then see whether psychology can furnish us with our units or monads.

3. The struggle between the sensationalists and the relationalists has been touched on above. "Empirical psychology" has never yet discussed character; for states of

mind, ideas, apperception-masses, etc., are not traits of character, do not tell us what a character is or does, but are merely the mechanism of a part of one aspect of character. "Association" and "apperception" cannot explain development, temperaments, prejudices, ideals, motives, or anything else we want to know about *concrete* character. They are at once too abstract and too specific, whereas ethology ought to be concrete and generic. True, ethology needs psychology, but it needs the philosophical and social sciences also. John Stuart Mill, the predicter and namer of ethology, could not construct even the beginnings of such a science. States of mind, successions of ideas, yea, even apperceptive systems of apperceptive groups, put us not one whit nearer real character. Psychology needs no justification. It has now become, or is becoming, a group of sciences—physiological psychology, biological psychology (Baldwin, Morgan, *et al*), social psychology, etc., as well as empirical and "rational" psychology. But while the science of character-development uses the data of the psychologist, and, when possible, his insights, his methods, and his generalizations, it cannot put the psychologist's various useful abstractions together and thus make an ethology to order. Its method is as different from that of psychology as the method of embryology is different from the method of physics. Mill thought that differences of temperament could be explained psychologically. Bain made an attempt —the result is not inspiring. Paulhan has grasped the principle of association in a very organic way, and has written several books with the express purpose of extracting ethology out of psychology. But his *axiomata media* do not explain anything, and his descriptions owe their value purely to his practical insights. His classifications are static and empirical. All this is useful, and is truly a valuable contribution to ethology from the psychological side. But where is *homo socius*, and where do history and the social sciences find their relations to ethology? A science of character must make the whole man significant, must show his development in all its aspects, must integrate the ethological aspects of biological, psychological, social, and historical sciences, as well as relate itself to the various philosophical disciplines. Perez, Fouillée, Ribot, Malapert, and others have followed this line; and much the same criticism applies to them all. Malapert has been criticised by his brother ethologists because he has dared to introduce "metaphysics." The sociologists, ethologists, psychologists, and the philosophers are working independently of one another. This is well, perhaps, but it will scarcely lead to a concrete-generic science of character. The widespread "child-study" of the day, so far as it is not in the hands of psychologists, is of no particular scientific interest, but it *is* a sign of the times, as showing the pressing practical need of an ethology to guide educational theory and practice.

II. METHOD. If it is a thankless task to relate the attempted beginning of a new science to sciences and disciplines of more or less acknowledged value, for workers immersed in their work to explain self-consciously the methods they are gradually learning to apply is an almost hopeless undertaking. I can best illustrate my imperfect understanding of the methods of investigation being evolved in ethology by comparing my views with J. S. Mill's famous fifth chapter of the sixth book of his System of Logic. Let me quote a couple of significant passages. "A science of ethology, founded on the laws of psychology, is therefore possible, though little has yet been done, and that little not at all systematically, toward forming it. The progress of this important, but most imperfect science, will depend on a double process; first, that of deducing theoretically the ethological consequences of particular circumstances of position, and comparing them with the recognized results of common experience, and, secondly, the reverse operation; increased study of the various types of human nature that are to be found in the world, conducted by persons not only capable of analyzing and recording the circumstances in which these types severally prevail, but also sufficiently acquainted with psychological laws to be able to explain and account for the characteristics of the type, by the peculiarities of the circumstances; the residuum alone, where there proves to be any, being set down to the account of congenital predispositions. . . . The conclusions of the science as a whole must undergo a perpetual verification and correction from the general remarks afforded by common experience respecting human nature in our own age, and by history respecting times gone by." These methods may lead to a science of the formation of character as Mill (*quâ* psychologist) understands character—states of consciousness coexistent and sequent. I cannot see that such a science would be valuable if it were possible, and I do not believe it to be possible. In the first place psychology is not far enough along to perform the function ascribed to it. And yet psychology is far more organic nowadays than it was fifty years ago. I have yet to find the psychologist that can "deduce theoretically the ethological consequences of particular circumstances of position." Modes of psychological process in no wise explain the motives and tendencies of character. One may as well agree with the "scientists" that think that biology is a mere branch of physics. Physical biology leaves out life, and merely psychological ethology leaves out all that is developmental and significant in organic character. Where is the abstract psychological explanation of tendencies, such as the economic, religious, artistic, scientific, etc.? Do "circumstances" explain these tendencies, however much you apply the laws of association and apperception to them? Then, too, the "recognized results of common experience" utterly lose their significance when "explained" mechanically and abstractly. Mill gives us a number of methods whereby the study of social phenomena may be carried on, but he seems not to see that the results of all the psychological, social, historical, and philosophical sciences, as well as all the methods appropriate to them, must be used in the microcosmic science, the most organic of all, ethology. He would have us analyse the types of character and account for them. We must first get the types; we must have some criterion of what *is* typical, we must at least have some way of deciding whether there *are* types. If psychology cannot classify the emotions, which are typical mental states, if there are any, how much can we expect from its analysis of types of character? Imagine, too, the value of an explanation that accounts for the effects of "circumstances" in a purely psychological way, and leaves the unexplained "residuum," "when there proves to be any," to "congenital predisposition." Surely this is Hamlet with the Prince left out. Mill's merit is so great in recognizing the need of an ethology that one feels that he should be judged by his deeper philosophical instincts rather than by his mechanical conception of character when he is psychologising.

What, then, is our method? Induction and deduction? Yes; for character tendencies must be inductively arrived at from a survey of the phenomena of human nature—industrial, political, personal, etc., and the general principles of the sciences concerned with humanity must be deductively applied to the study of the tendencies we have provisionally found. Observation, experiment, and verification? Yes: introspection for the sake of studying motives, tendencies, trends, attitudes, etc., with which psychology does not concern itself, except so far as these group themselves by mechanical processes; observation of children's development, of animal instincts and habits (rather than of their "percepts" and "recepts"); observation of social phenomena as phases of individual life, and of individuals as they are affected by known social conditions. Experiment Mill does not believe to be practicable. And he is right, if one must "explain" every change and situation in a *psychological* way, but we can, and do, test tentative ethological conclusions by watching the effects on *character* of the changes introduced into the kindergarten and school practice. The difficulty in the interpretations of such experiments is not very great when we know the children intimately, when the test is comparative, when it is confirmed by individual cases under widely differing conditions, and when observation shows that such experiments carried on *naively* lead to the same results. Experiment, however, is only corroborative, and cannot be trusted alone. The best verification of ethological conclusions seems to me to be given in the increased insight into life, history, the social sciences, and philosophy, and at the same time in the increased ability to comprehend other characters and to deal with them intelligently. Ultimately, no doubt, the best verification will be found in practical education, though much time and many tears must intervene before such results can be reached. All that I have said about ethological methods is of little significance if two additional principles are not taken into account:—(1.) *Hypothesis.* Without some sort of working hypothesis the complexity of the subject baffles all efforts. The doctrine of biological development, differentiation and integration, modified by philosophical criticism and by the view of character expressed in the first part of this paper, this is the hypothesis, the most organic one to hand. Each character tendency is represented as differentiating into more specialised form; as becoming integrated in some of its aspects with certain tendencies, and in other aspects with other tendencies. All the higher instincts are prophesied in the lower; all the lower are included and transformed in the higher. (2.) *Concentric Lines.* The crossing-points of various lines of observation, argument, etc., are taken as centers from which further study is carried on along the various lines thus intersecting. Thus, when biographical, historical, introspective, political, and other classes of data point to the same general conclusion, it is tentatively applied to the ethological side of the fields co-operating in suggesting a common conclusion.

In order that the foregoing may be clearly grasped, attention is directed to the diagram of character development in the second article, and the notes that hint at an explanation of it. Brief—and hence inadequate—as the next section must be, the thought underlying it is, in the opinion of the writer, one of the main reasons for the existence of ethology, as differentiated from other psychological sciences.

ETHOLOGY: STANDPOINT, METHOD, TENTATIVE RESULTS.

By THOMAS P. BAILEY, JR.

PART II.

On page 550 of the last number of the UNIVERSITY CHRONICLE (December, 1898) the following words occur:

"Without some sort of working hypothesis the complexity of the subject baffles all efforts. The doctrine of biological development, differentiation and integration, modified by philosophical criticism and by the view of character expressed in the first part of this paper,—this is the hypothesis, the most organic one to hand. Each character tendency is represented as differentiating into more specialised form; as becoming integrated in some of its aspects with certain tendencies and in other aspects with other tendencies. All the higher instincts are prophesied in the lower; all the lower are included and transformed in the higher."

This hypothesis (which *in abstracto* lays no claim to novelty) leads to some "tentative results" which are very roughly indicated in the next section. Certain stages and lines of character development, which I feel compelled to picture to myself diagrammatically, may well be compared with the well-known views of Dr. W. T. Harris. Such a comparison may serve as an introduction to our hasty study of the diagram. Of course, Dr. Harris is in no way responsible for the use I make of his views. In the *Educational*

Review for January, 1899, (p. 12), he gives the following stages in education; they are not intended, I presume, to be exhaustive, or to be regarded as hard and fast distinctions. (The italics in the quotation are mine.) Says Dr. Harris:

"Recapitulating for the sake of clearness: (1) the infancy period of education in the kindergarten requires a method of instruction adapted to the *symbolic* and *imitative* stage of the mind. (2) The elementary school demands the method that can sieze and analyze *typical facts*, these facts being of the first order, that is to say, facts that are not yet treated as organized into groups by science but are capable of such treatment. (3) Secondary education requires the method which deals with the large facts that include *entire groups of facts systematically arranged*, while higher education deals with a still larger fact, namely the *several sciences* unified into a single group by the *comparative method* so that each science helps explain all, and all, each."

Let us subdivide the above stages and restate them in terms of character-development. The "symbolic" and "imitative" stage becomes (I) the imitative, or stage of *habit* (first triangular section—x_1—of Fig. 1 of the diagram), (II) the symbolic, or stage of *spontaneity* and play (Fig. 1, first circle—X_1). Dr. Harris' stage of "typical facts" (2) may be divided into: (III) the formal stage of *custom* (x_2); (IV) the "content" stage of *concrete-generic* (typical) facts—natural, aesthetical, social (X_2). Secondary and higher education are included in stage (3) of Dr. Harris' division: (V) the stage of *law;* and (VI) that of *science*, in the widest sense of the term. Here we have three formal stages (habit, custom, law) alternating with three content or formative stages (spontaneity, types, science). The difference between formal and formative is one of emphasis only. In the central axis of character, "form and content" are one. What we said in the first article about the uniqueness and solidarity of character must be borne in mind here. A few words of comment on each one of these six stages may serve to show that they are in some degree represented in experience, and yet are not intended to be either inelastic pigeon-holes or an exhaustive list of sharply defined stadia. We may as well expect to find sharp lines of division in embryological development, as to expect them in the development of character.

(I) The stage of habit (x_1) is what Comenius called the "education of the mother's lap." Here the biological tendencies and instincts become orderly and systematic, but without having their plasticity tampered with. Generic rather than specific habits are to be formed; the child is to gain an equilibration of *psychical* receptivity, *self-assertive* reaction, and *sympathetic* responsiveness (see diagram, Fig. 1, triangle x_1). Kindergartners often find that the children coming to them need to have this habit-stage overhauled and set to rights before the *spontaneous* side of character can be further developed. The kindergarten that neglects this adaptation of spontaneity to habit is worse than useless. If this is true, quite a large number of kindergartens have little reason for being.

(II) While the stage of spontaneity (X_1), with its animal playfulness, gregariousness, and appropriativeness, is the essence of the kindergarten age, here as always, is a tacit assumption of higher stages, and a reaching out toward them. Here the child may very well grow naively into greater definiteness of thought and speech, greater social reverence and dependence, more developed sense of propriety in dealing with *meum* and *tuum*. Not to reach up in this way is to justify in large measure the reproach of some primary teachers that the kindergarten unfits children for discipline and formal work.

(III) In the stage of custom (x_2) we find the main work of the primary grades (say the first four). The empirical use of the tools of thought, the ability to dig out a task unaided, reverent hero-worship of a catholic kind—these seem to be the main characteristics. Not only do we see these traits manifested in part in the "formal" work of language and number, but we see them quite as clearly in the learning of "location, direction, distance," etc. (See, for instance, Berkeley Public School Manual, p. 20); and in the careful oral reproduction of stories. This stage does not forget to care for habit and spontaneity. Indeed, no period of education can afford to neglect any of the basal stadia. Even the university professor insists on habit—sometimes unduly! On the other hand, the primary school cannot afford to refuse an outlook into the stage above it. Quite often, individuals who have great difficulty with the formal work are kept alive mentally by being able to see "what good they'll get out of it," and by "getting tastes" of that good. Very often either grammar school work on the one hand, or kindergarten work on the other, has to be given to primary school children. The principle underlying this remark can be applied to all other grades and stages.

(IV) The grammar grades carry on the work of primary drill, but the study of typical groups of facts becomes emphasised. Here (X_2) history, geography, and literature become more clearly differentiated and also more clearly co-ordinated. Geography studies the natural and economic environment of man; history studies individuals who typify the groups they lead; literature, too, becomes valuable for "what there is in it" of the typically heroic vividly portrayed. Ethicality is the integrating force here—not ethics, but ethical characters; not ideally spiritual characters, but heroic ones of custom transcended yet respected. The golden age of the Greek, the Roman, and the Hebrew, and the modern heroes showing forth like essential traits—these typify the content of this predominantly "formative" stage.

(V) Our best high schools seem to exemplify the stage of law (x_3). Think of the place filled by foreign languages and mathematics. In history, the growth of laws, constitutions, social institutions, are studied. The *results* of historical study are used to teach methodical analysis and synthesis. There is historical drill, not in habit and custom, but in law. What are the representative natural sciences of the high school? Physics and chemistry. Now these, as taught in the high school, are useful, not so much on account of the knowledge they give, but for the sake of the methods they teach. The adolescent needs law and method more than anything else. Of course, this presupposes that the formal and formative work of previous stages has been well done. Then, too, the high school student has a right to have the college attitude started in him.

(VI) In the college stage, study becomes more or less scientific (X_3). The high school training has to be kept up in large measure, but the student's surroundings are more significant and more universal. His work is more abstract and at the same time more specialised. The whole round of human thought and activity comes before him in all its complexity and interconnectedness. Knowledge and training go hand in hand. One rejoices alike in the power of faculty and in the truth he finds. He seeks the truth that shall make him free or *spiritual*, and the seeking itself frees him.

We might add another stage for the higher work of investigation, of specialty. Here a man "comes to the point;" happy he whose specialty is the point of a *character* with breadth and depth and height enough.

Let us now turn to a more formal study of the diagram.

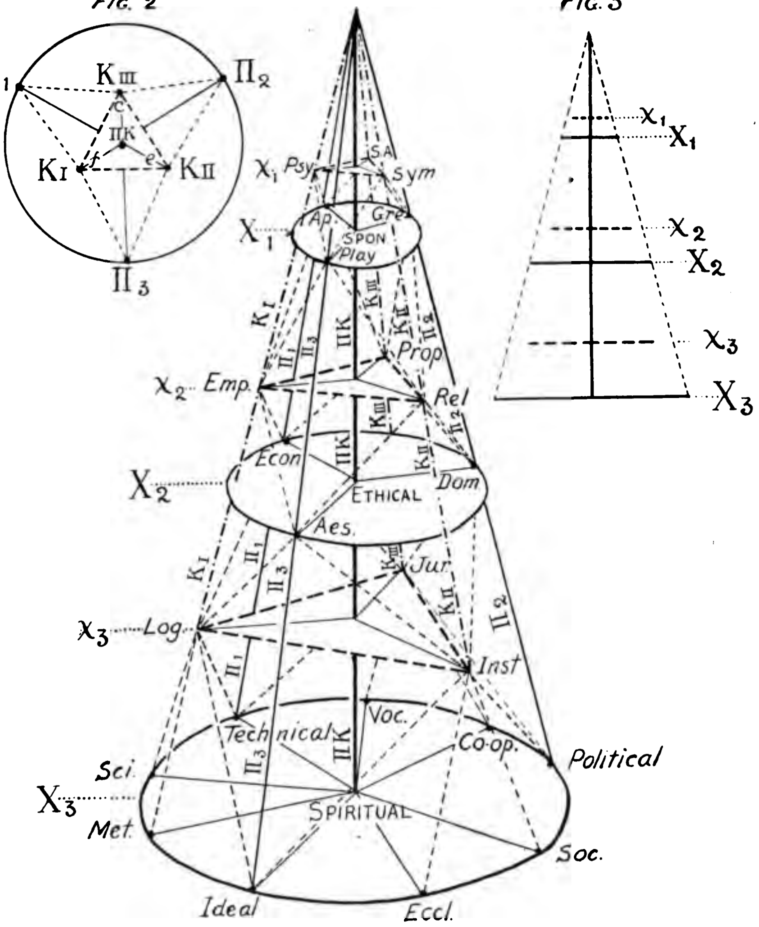
III. SOME TENTATIVE RESULTS. In Fig, 1 of the diagram[*] we have a representation of the development of

---

[*] My thanks are due to my friend Mr. G. T. Winterburn, Instructor in Drawing, for his careful execution of the diagram.

For convenience, I give a list of equivalents of the abbreviations in the diagram: Biol = Biological; Psy = Psychical, Sym = Sympathetic, S-A = Self-assertive; Ap = Appropriative, Gre = Gregarious, Spon = Spontaneous; Emp = Empirical, Rel = Religious, Prop = Proprietary; Econ = Economic, Aes = Aesthetical, Dom = Domestic (Gentile); Log = Logical, Inst = Institutional, Jur = Juridical; Sci = Scientific, Met = Metaphysical, Eccl = Ecclesiastical, Soc = Societary, Co-op = Co-operative, Voc = Vocational.

FIG. 2 FIG. 1 FIG. 3



character by differentiation and integration. The development starts at Biol., the apex of the cone, and culminates in the circular base (Technical . . . Political . . . Ideal; Spiritual), which includes within itself all that has preceded it. The three surface lines that spring from B (Biological) stand for "lines of development" (Π_1, Π_2, Π_3); the circular parallels that intersect these lines represent "stages of development" (X_1, X_2, X_3). Within the cone, and forming the edges of the triangular pyramid, are the "regulative lines" (K_{I}, K_{II}, K_{III}), and connecting them are, the "regulative stages" (x_1, x_2, x_3). The diagram shows the progressive broadening, deepening, specialisation, and integration of intelligence.

Fig. 2 is a ground-plan of a cross-section of the figure, and shows the relation of the lines to one another and to the axis. Thus K_{I}, the Psychical-Empirical-Logical line, strongly affects and is affected by the lines of industry and art ($\Pi_1 =$ Biolog . . Tech, $\Pi_3 =$ Biolog . . Ideal); K_{II}, the Sympathetic-Religious-Institutional line is specially connected with the lines of art and power ($\Pi_3 =$ Biol . . Ideal, $\Pi_2 =$ Biol . . Polit); while K_{III}, the Self-assertive-Proprietary-Juridical line connects closely with the lines of power and industry ($\Pi_2 =$ Biol . . Polit, $\Pi_1 =$ Biol . . Tech). All lines connect with, and are connected by, the axis ΠK (Biol . . Spir).

Fig. 3 represents a longitudinal section; it shows the developmental stages ($X_{1\text{-}3}$, $x_{1\text{-}3}$), which are indicated in Fig. 1 by the triangles and circles.

Let us first review briefly the lines of development, beginning with the industrial line ($\Pi_1 =$ Biological-Appropriative-Economic-Technical). While all the lines, stages, and tendencies contain all psychological aspects (intellect, feeling, conation, emotion), and hence both aspects of intelligence—sensational (π) and relational ($\varkappa$), line Π_1 is more sensational ("getting along," wealth, property, etc.) than relational, and more *objectively* sensational ($\pi_1 =$ "senses," objects, facts, the weighable and measurable) than *impulsively* sensational (π_2) or *affectively* sensational (π_3). This line is characterised by feeling (f) and conation (c) rather more than by emotion (e). Political economy has well brought out the characteristics of the line: ponderable wealth, calculus of pleasure, enterprise, individualism, etc. The "Historical School" has tried to show the connection of Π_1 with Π_3 and Π_2. This attempt easily becomes vague and sentimental. Still, even superficially, these lines are connected. ***Homo œconomicus*** is an abstraction, but all science must abstract for the sake of convenience. Ethology abstracts only to discriminate while connecting. In the industrial line, snatching what you can, hunting, etc. (Appr), precede storing-up, agriculture, etc. (Econ); later still comes the Technical tendency (specialisation, machinery, technical arts and professions). Of course some measure of the preceding stages *must* be contained in the succeeding—although some people resent the native 'appropriativeness" of "private property." In contact with the scientific instincts or tendencies (Sc), and the vocational influences (Voc), and influenced by the higher civilization in general (Tech . . Ideal . . Pol; Spir), the ideas of life-work, responsibility for talents, stewardship to society, etc. are becoming stronger. The biological and appropriative may be "kept under" the technical and transformed by it; but they will always be in evidence, and will constantly tend to "get on top." Conditions of lawlessness and national immorality tend to make the individual "revert" to his animal stages. There can be no possibility of progress without the possibility of reversion. The fresh blood of the barbarian is a good thing if a sufficient amount of it—and not too hot—goes to the brain.

The third line (Π_2) is the Biological-Gregarious-Domestic (or Gentile)-Political. It is especially characterised psychologically by the impulsive-sensational (π_2) element, and by conation (*c*) and emotion (*e*). Resistance, the sense of power, sovereignty, striving, ambition; the getting-together instinct, caste, party, social solidarity, and so on—these we find whether we consult Plato or Aristotle, Hobbes or Bluntschli, Ihering or Maine. Fitz James Stephen's essay "Liberty, Equality, Fraternity" is an eloquent argument for the Force differentia of this line. History is one long comment on the individualisation and socialisation of authoritative "Force." Gregariousness is a patent animal and human fact without which the exclusive gentile life is impossible. The horde (or temporary group), the clan, the state, seem to be nodal points in political development. There are no doubt transitional forms, and innumerable specific differences. The so-called progress "from status to contract" seems rather to be the *differentiation* of status and contract, of the industrial life and the political, and the closer relating of both to the conscience. A "social contract" is perhaps as true (at a late stage of development) as an industrial status. Neither is "typical." The best political instincts are those which include all that is vital and valid in gregariousness and gentilism, and which relate themselves most organically to other lines of character, especially to the internal axis of autonomous self-respect and respect for the other autonomous persons who together with ourselves form the state. Mr. Jenks may be right in believing that the clan and the state are ever opposing each other. Opposition in some form characterises the political line, (witness the party-system); but the state can overcome the clan only by including and subordinating it.

The ideal line (Π_3) of the development of intelligence is strongly affective (π_3); it is characterised by emotion *(e)* and feeling *(f)* rather than by conation *(c)*. Professors William James and C. Lange have identified the "affective sensation" with the emotion. It seems to me that there is about the same amount of truth in this as in the identification of feeling *(f)* with sensation (π_1), and of conation *(c)* with impulse (π_2). Sensation, impulse, and affect are the *content*-aspects of feeling, conation, and emotion (See Fig. 2). In the pictorial language of matter, we may say that the outer germ-layer or periphery *(ectoderm)* is specially concerned with objective sensation (π_1), which best represents the specific difference of the sense-organs and the specifically intellectual aspect of sensation. So impulse (π_2) and the muscle-layer *(mesoderm)*, and affect (π_3) and the visceral layer *(entoderm)*. But each layer and all nervous tissue is the nervous expression of generic and *organismal* feeling, conation, and emotion. Hence these aspects of consciousness are generic, organismal, while sensation, impulse, and effect are specific (organic). There is no such "specific energy" in the organismal phase as in the organic; nevertheless objective sensation will naturally go with those generic phases of consciousness which it most closely represents, and so with the others (impulse and affect).

Kant and others have noticed the absence of conation from art. Tolstoy has recently insisted on the infectious emotionality of true art productions, but he is wrong in stigmatising art for play and pleasure as "false." As emotion is predominantly sympathetic, and feeling psychical, we can understand why he should oppose the mere enjoyment aspect of the aesthetic instincts. Perhaps the development from Aesthetical to Ideal corresponds with the change from the "classic" into the "romantic." Our scheme would demand that the romantic include and transcend the classic. If the reader wishes to trace the connection between the biological and play instincts, and between the play and the aesthetical, he is referred to the works of Groos, Grosse, Baldwin, *et al.* The aesthetical-ideal relation is familiar to to students of Greek life and thought, as well as to Herbartians and Ruskinians, not to mention others. Of course the specifically aesthetical element (perfection, honor, admiration, ideality, etc.) is not the only one. The industrial life contributes hedonistic features; the political life, compulsory features; etc. The place that art occupies here includes all the phenomena from the ploughing of a straight furrow because its straightness gives the satisfaction of harmony or fitness, to the production of masterpieces in literature, art, science, philosophy, etc. The aesthetical and ideal elements are clearly to be seen in all earnest, thorough, significant thought and life.

Coming to the "regulative lines" (K_{I}, K_{II}, and K_{III}) we find them strongly contrasted. The logical line (K_{I}) starting with animal curiosity and "love of sensation" (psychical, Psy) leads to the empirical tendencies (Em) of "common sense" and "intuitive concepts," and thence to the logical function that seeks for rule, principle, category. Here we find the beginning of the self-conscious and systematic search for causes, the stimulus to invention, the "knowing" side of conscience, and like phenomena; the logical instinct seems to be the regulative center for the Technical, Scientific, Metaphysical, and Ideal tendencies. Here we have the practical logic of the arts, the instinctive scientific methods, the spontaneous categories of philosophy, and the instinctive rationality of art. In reflectively perfecting its technique and method, academic art becomes self-consciously logical, and often fails to carry over its aesthetical spirit into its technique. The reflective order reverses the instinctive. It is the reflective order that gives us our logic-books and formal methods. The connection of the empirical instincts with the economic and aesthetical will be evident, although some abstract economists and some over-zealous idealists in art need to be reminded of the fact. Nor will it be denied that the perceptual or psychical instincts (Psy) differentiate and stimulate the intellectual side of appropriativeness and play. The logical line is the one most studied by psychologists and philosophers.

The Sympathetic-Religious-Institutional line (Sym-R-I) is relational rather than sensational, but is very unlike the K_{I} line in the form of its relationality. K_{I} stands between Π_1 and Π_3 and hence partakes of the objective-sensational nature of the one and the affective nature of the other; but K_{II} (Sym-R-I) has the affective of Π_3 and the "ejective" or impulsive-conative and social-imitative qualities of Π_2. Hence religion, for instance, is less objective and more ejective than "common sense." It tries to make up for this lack by the use of symbolism, ritual, etc. The Institutional laws of state (Pol), church (Ecclesiastical), Social Conventional, etc. (Societary), are more ejective (collective) and less objective than the logical laws of thought and "nature." Sometimes the laws of the state simply stand for someone's logic. Such laws are not likely to stand of themselves. So logical laws are sometimes framed to explain existing institutions. They cannot be depended on to furnish truth. The distinction between the "association of ideas" in the psychical instinct and of persons in the sympathetic has been commented on from the beginning. The "egoism-altruism" antithesis is in part a rather crude attempt to define this relation. The K_{II} line is intended to show the sympathetic-religious-institutional regulation of the "individual and the state," that is, of these two aspects of both individual and the society of individuals. Philosophers, historians, theologians, and writers of the Fustel de Coulanges and Hearn type, have brought these relations out pretty clearly. The anthropomorphism of religion, its tendency toward conservative institutionalism, the hero-worship basis of patriotism, "genteel society," churchmanship—are facts that need only be named.

K_{III} (Self-assertive-Proprietary-Jural) is the line leading from animal egotism to the juridical recognition of the rights of self and others. Its economic influence on the one hand, and political on the other, is evident. Self-assertion manifests itself both psychically and sympathetically. The proprietary instincts include much of the primary meaning of both "property" and "propriety." A good illustration of this is seen in early legal codes, where the sections devoted to Theft and Procedure occupy so much space and prominence. Vocational and co-operative rights and duties are peculiarly modern outgrowths of the Jural instincts. When the three regulative lines are taken together we see the incompleteness of the "Egoism-altruism" antithesis.

Next we must notice the "stages of character development" (represented in the diagram by the circles), and also the "regulative (or formal) stages" (represented in the diagram by triangles).* Taking up the latter first, we have "habit, custom, and law." The first stage (x_1) is the beginning of "invention and imitation." (Tarde, Baldwin, *et al.*), of "association," suggestion, self-preservative habits, etc. Here achievements are mechanised in order that they may serve as a fulcrum for the spontaneity and higher "habit" of higher stages.

The next formal stage is custom (x_2). Perhaps this marks as nearly as possible the beginning of distinctively *human* life—belief and custom, self-consciousness and language, worth and privilege. The educational implications of this stage are particularly abundant, and, I think, fruitful, but I forbear. Here, too, we are helped to distinguish magic, sorcery, etc., which are empirical forms of animism, from worship, sacrifice, etc., which are religious forms, and from blood-revenge and torture, which are proprietary forms. Remember that the nearer the animal the phenomena are the greater difficulty we have in distinguishing character-phases. For instance, we separate science from social position very readily. Not so the primitive man, if any of the writers on this subject is to be trusted. Max Müller's contention that "linguistic" is a natural science and Whitney's that it is a social science, are both true in more ways than one, according to our scheme.

The regulative stage of law (x_3) is seen historically in the later development of the Greeks, Romans, and Jews. Roman law is a monument of the juridical tendency; Rabbinical law shows law on the institutional side; Greek logic, grammar, etc., show it in the logical direction. The law, whether of thought, rights, or institutions, has ever been the school-master to lead men to a higher civilization, and yet individuals and nations sometimes become arrested at this stage.

In the character-stages, X_1 (Ap-Pl-G) seems to typify the higher animal life as it is described by the comparative psychologists. In education, the kindergarten attempts to make this stage characteristic. We must not forget that the scientific, ethical, and all the higher instincts are represented

---

* See p. 21.

in human beings at the lower levels. The play of a people and their natural gregariousness and "acquisitiveness" are very significant prophecies of their future attainments. Note the character-traits of our Teutonic ancestors.

The second developmental stage (X_2) seems to be dominant in all ancient civilisation. Note the ethical internality of the Hebrew prophets, the artistic life of the Greeks, the *patria potestas* (D) of the Romans, the economic activity of the Phoenician, Carthaginian, and other commercial cities. Note, too, slavery, contempt for manual labor, monumental public buildings, the city states with their clan organization. True, Greece and Rome advanced beyond this stage. Perhaps all the civilized peoples of antiquity went beyond it. But it expresses, I think, the very genius of antiquity. The Greek and Roman "democracies" were gentile in their best days. Ancient morality, whether Stoic or Epicurean, was aesthetical, economic, and domestic. Trade and commerce fitted in with a slave economy. *Individuals* in Greece and Rome, and very especially in Palestine, became true moderns, but they could not carry their compatriots to the heights with them.

The third stage (X_3) represents modern life, with its sciences and arts, its philosophy and personal conscience, its churches, its social institutions, its democratic state-life. The middle ages seem to have oscillated between X_2 and X_3. Their best contributions were conserving instititutions in Church and State and conserving logic in matters intellectual. No people ever had a uniform development of these lines and stages, for no individual ever had or (perhaps) ever will have such a development. At some historical periods the industrial line grew fastest, at others the political, at times they have grown together. The aesthetic-ideal line has often outstripped the others. The present tendency is towards greater integration as well as towards greater differentiation, but we can hardly be sure that our present stage is not as far from the final one (if there be such an one) as the Biological is from the Spiritual. I

UofM

should like very much to discuss (from the standpoint of Ethology) this last stage—the relation of state to public opinion, of society to church, of philosophy to science, of science to the arts, of vocation and coöperation to conscience, but time and space are lacking. Of course I could not presume to discuss any of these subjects as a specialist, but I think that this view introduces great practical unity into the maze of ethological relations, and helps to do concretely and generically what the "philosophy of history" and "sociology" attempt to do abstractly.

Although this brief sketch is hopelessly incomplete and although the most valuable technical features of the work have not even been mentioned, it is barely possible that I have said enough to convince a few persons that it is worth while to carry on the work. If so, I must confess that coöperation with others interested in these matters becomes a necessity. Not only is special knowledge needed to carry on study along the many routes indicated by the scheme, but sympathetic criticism, or, if that is impossible, any sort of valid criticism, is still more necessary. For instance, ethology is more or less distinctly connected with such subjects as the philosophical sciences, psychology, pedagogy, jurisprudence, economics, politics, history, aesthetics, philology, literature, art (including decorative art, history of art, etc.), the history of the various arts and sciences, ethnology, anthropology, theology, etc., etc.—a formidable list.

In order to indicate some of the work being done in ethology at the University, let me mention some subjects and topics being worked on by graduate students: "Develment of the Hebrew Character," "Emotion-Types," "Classification of Character-Types," Biography (J. S. Mill, Darwin, Napoleon, etc.); Ethology and the Kindergarten; Character-Results of Pedagogical Methods.*

---

*In Bulletin No. 13 of the University Library (issued since the first article) will be found lists of some of the typical books that are useful in this work.—Some references are given in the topical index. A comparison of the diagram in this article with the earlier diagram in the Bulletin will partially show two successive stages in the development of my ethological work.

U of M